
Final Work Plan Addendum

Corrective Action

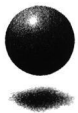
Submitted to
Modine Manufacturing Company

March 2002



R00190616
RCRA RECORDS CENTER

CH2MHILL



CH2MHILL

CH2M HILL
727 North First Street
Suite 400
St. Louis, MO
63102-2542
Tel 314.421.0900
Fax 314.421.3927

March 29, 2002

168545

Christine M. Kump
Environmental Engineer
Missouri Department of Natural Resources
Hazardous Waste Program
1738 E. Elm (Lower Level)
Jefferson City, MO 65101

Subject: Final RCRA Corrective Action Work Plan Addendum
Modine Manufacturing Company
Camdenton, Missouri

Dear Ms. Kump:

Please find enclosed the Final RCRA Corrective Action Work Plan Addendum that CH2M HILL is submitting on behalf of Modine Manufacturing Company. The Work Plan Addendum summarizes the actions proposed by Modine regarding management of impacted soils at the Camdenton, Missouri facility. The Draft Work Plan Addendum was approved with modifications by the MDNR in a letter dated February 15, 2002. The Final Work Plan Addendum incorporates those modifications.

Please feel free to call Dan Price or Tim Biggs with any questions you may have. We can be reached at 314-421-0900.

Sincerely,

CH2M HILL

Daniel J. Price, R.G.
Client Service Manager

Timothy C. Biggs, R.G.
Project Manager



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c: Thomas Sanicola - Modine Manufacturing Company
David Garrett - USEPA Region 7
Kurt Hollman - MDNR DGLS
Steven Poplawski - Bryan Cave LLP

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SECTION 1

1.0 Introduction

This Work Plan Addendum summarizes the actions proposed by Modine Manufacturing Company (Modine) to manage the impacted soil stockpile and impacted in-place soil located at their 179 Sunset Drive facility in Camdenton, Missouri (EPA ID: MOD062439351). The soil stockpile, which is impacted by chlorinated volatile organic compounds (VOCs), is the result of Corrective Action excavation activities conducted pursuant to the Missouri Department of Natural Resources (MDNR) Corrective Action Abatement Order on Consent issued in July 1999 and the Corrective Action Work Plan approved by MDNR in August 2001. This Work Plan Addendum addresses issues discussed in a December 14, 2001, conference call that included representatives from MDNR, Modine, and CH2M HILL and proposes a path forward based on that discussion.

1.1 Background and History

Modine manufactures heat transfer products at the Camdenton, Missouri, facility located at the southwest corner of Sunset Drive and Dawson Road. Several previous investigations were conducted to identify the nature and assess the extent of the contamination in subsurface soil at the site. A summary of these investigations is provided below:

- During an investigation in 1995, a soil sample collected from directly above bedrock in a boring advanced west of the manufacturing building exhibited elevated VOC concentrations. The soil sample exhibited trichloroethene (TCE) and tetrachloroethene (PCE) concentrations in excess of the current MDNR Cleanup Levels for Missouri – Soil Target Concentrations - Leaching to Groundwater Pathway (CALM STARC C_{LEACH}) level. Reported concentrations were 204 parts per million (ppm) of TCE and 2.18 ppm of PCE (Dames & Moore, February 1996).
- In October 2000, a field investigation consisting of the collection of subsurface soil samples was conducted to assess the lateral extent of contamination surrounding the 1995 boring. Four borings were advanced during the investigation. The effort confirmed the presence of TCE degradation products [vinyl chloride, and cis-1,2-dichloroethene (DCE)] in subsurface soil (CH2M HILL, October 2000).
- During December 2000, eight direct push soil probes were advanced to better define the lateral extent of soil contamination from chlorinated VOCs. Seven probes were advanced around the October 2000 borings. The eighth probe was advanced down surface gradient of the area of interest. The results indicated that vinyl chloride exceeded the CALM STARC C_{LEACH} level in each of the new borings except for the down surface gradient boring and cis-1,2 DCE exceeded the CALM STARC C_{LEACH} level in four borings (CH2M HILL, February 2001).

Based on the results of previous subsurface investigations, it was estimated that the volume of impacted soil would be limited to approximately 450 cubic yards in extent. A Corrective Action Work Plan was submitted to and approved by the MDNR in August 2001. The Work

Plan specified that the impacted soil would be excavated, transported, and disposed as special waste at an offsite landfill.

1.2 Corrective Action

Soil excavation activities were conducted in October and early November 2001 in an attempt to remediate soil impacted with chlorinated VOCs in excess of MDNR CALM STARC C_{LEACH} levels. Approximately 4,800 cubic yards of soil were excavated. The volume of excavated and stockpiled soil exceeding MDNR CALM STARC C_{LEACH} levels is estimated at 3,000 cubic yards. All impacted soil was placed on plastic sheeting, covered with tarps to prevent erosion, and surrounded by a soil berm to prevent contact of meteoric water with the impacted soil.

As the excavation activities progressed and more information regarding the historic handling of chlorinated solvents at the facility became available, it became apparent that the volume of impacted soil was significantly more than originally estimated. This is particularly true laterally to the east and southeast of the assumed area of impact. In order to better understand and define the extent of impacted soil prior to any further excavation, Modine ceased excavation activities and conducted a direct-push subsurface investigation.

Thirty-four direct-push soil probes were advanced during the November 2001 subsurface investigation. Twenty-nine of the soil probes were placed in areas north, east, and south of the previously excavated area. Four of the soil probe locations were placed in the parking lot area located north of the excavated area. The parking lot was investigated based on information regarding the historical handling of chlorinated solvents in this area.

Each boring was advanced until probe refusal (bedrock at 1.5 to 22.5 feet bgs) was encountered. Borings were generally placed approximately 20 feet or more from areas of known or suspected impact identified during the excavation activities. If field results (photoionization [PID] readings, odor, discoloration, etc.) indicated a probe location had impacted soil, that location was again offset (typically by 20 feet) until the lateral extent was presumably defined. Soil samples were collected from locations where field-screening results indicated minimal impact. No samples were collected from borings with obvious impact.

Seventeen soil samples were collected at depths near the soil/bedrock interface and were analyzed for VOCs. The results indicate that the lateral extent of VOCs in the soil overburden are reasonably well defined. The existence of underground utilities (e.g., water lines) near the western edge of the Modine building prohibited placing further borings to completely define this area.

Based on results of the direct-push investigation, it is estimated that approximately 2,700 cubic yards of in-place (approximately 3,500 cubic yards when exhumed) impacted soil are present in the area between the Modine building and the currently excavated area (CH2M HILL, January 2002).

SECTION 2

2.0 Project Approach

Modine's approach to managing the impacted soil stockpile and impacted in-place soil is intended to: (1) protect human health and the environment; (2) achieve the objectives outlined in the MDNR Corrective Action Abatement Order on Consent; (3) determine practical soil cleanup objectives; and, (4) present cost-effective remedial alternatives. To achieve these goals, Modine proposes the following three pronged approach: (1) management of the stockpiled soil as a special waste located within the Area of Contamination (AOC) using the Staging Pile rule as guidance for management of the pile; (2) re-evaluation of the soil cleanup guidelines based on determination of site-specific analyses; and (3) definition of a path forward with regard to in-place soil.

2.1 Soil Stockpile

In accordance with MDNR discussion and direction during the December 14, 2001 teleconference, the impacted stockpiled soil is not a listed hazardous waste and laboratory testing to date has shown that the material is not a characteristically hazardous waste. Therefore, the material will be classified as a Special Waste rather than a Hazardous Waste. In addition to being classified as a special waste, the impacted stockpiled soil will be included as part of the AOC.

The soil pile is approximately 50-feet by 150-feet and is designed to prevent or minimize releases of the material into the environment and minimize or adequately control cross-media transfer, as necessary to protect human health and the environment. This is being accomplished through the use of covers (tarps) and run-off/run-on controls (soil berms). The pile will be operated for a maximum of two years from the date on which the soil pile was initially constructed. Even though the soil stockpile has been classified as special waste, the facility will use EPA's Staging Pile regulation (40 CFR 264.554) as guidance for managing the pile.

Maintenance of the pile will continue as the impacted material is being incrementally disposed at an offsite facility licensed to accept Special Waste. Twenty cubic yard dump trailers will be used to transport the material to the disposal facility. It is anticipated that material will be removed over an approximate one-year period. Depending on weather conditions, scheduling, approvals and other factors, the pile should cease operating by the beginning of the first or second quarter of 2003.

After the operating term of the staging pile is complete, materials used to protect the integrity of the pile will be decontaminated. A total of three confirmation soil samples will be collected from the surface soils beneath the former pile location and submitted for VOC analysis. One sample will be collected per each approximate 50-foot by 50-foot area of the soil pile.

2.2 Alternative Clean-up Levels

The development of alternative site-specific soil cleanup action levels will be pursued. Consideration of site-specific action levels is necessary due to: (1) the significant volume of soil impacted with concentrations of vinyl chloride which only slightly exceed CALM STARC C_{Leach} levels; and, (2) the absence of vinyl chloride concentrations exceeding CALM Groundwater Target Concentrations (GTARC) levels in groundwater samples collected from nearby on-site monitoring wells. In other words, it appears that although there is a significant volume of soil impact exceeding soil cleanup guidelines, the vinyl chloride does not appear to be leaching into the underlying groundwater.

As discussed in CALM, the Synthetic Precipitation Leaching Procedure (SPLP, USEPA Method 1312) will be used to determine a site-specific leaching potential of the chlorinated VOCs. This will involve collecting five to 10 soil samples from the most contaminated portion of the impacted soil area and analyzing them for total VOCs (USEPA Method 8260) and by SPLP. A seven-day turn around time (TAT) will be utilized for all samples.

A determination of an acceptable residual concentration of vinyl chloride in the site soil would then be made based on: (1) comparison of the SPLP leaching results to CALM GTARC guidelines; and, (2) comparison of the SPLP leaching results for each sample to its corresponding total VOC soil concentrations. The proposed alternative site-specific action levels will be submitted to MDNR for review and approval prior to implementation.

2.3 Path Forward

Once an acceptable residual concentration of vinyl chloride in the site soil is determined based on the SPLP analysis, an estimation of the volume of impacted in-place soil remaining at the site that requires further action can be calculated. It is anticipated that the volume of in-place soil requiring further action will be reduced, perhaps significantly, from that currently estimated. Remedial alternatives will be screened to assess the most cost-effective way to remediate the remaining volume of impacted in-place soil. If soil volumes are reduced significantly, excavation and off-site disposal will likely be the selected remedial alternative.

Results from the subsurface direct-push investigation indicate the possibility that residual chlorinated VOC concentrations exist beneath the Modine facility. Due to the confined, capped nature of the contamination beneath the Modine facility, it is anticipated that no indoor air quality impact has or will occur. Elimination of this exposure pathway will assist in determining that there are no unacceptable human exposures to contamination and thus satisfy the Environmental Indicator "Current Human Exposures Under Control" used by EPA to track progress at sites under the RCRA Corrective Action Program.

SECTION 3

3.0 References

Dames & Moore. *Findings of an Investigation to Achieve Final Closure of the Interim TSD Facility*. Modine Manufacturing Company, Camdenton, Missouri. February 1996.

CH2M HILL. *October 2000 Investigation Results*. Modine Manufacturing Company, Camdenton, Missouri. October 2000.

CH2M HILL. *RCRA Facility Work Plan Remaining Task Implementation Summary*. Modine Manufacturing Company, Camdenton, Missouri. February 2001.

CH2M HILL. *RCRA Corrective Action/Subsurface Investigation*. Modine Manufacturing Company, Camdenton, Missouri. January 2002.

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APR 02 2002

RCAP

To: US EPA Region VII
901 North 5th Street
Kansas City, KS 66101

From: Dan Price
CH2M Hill
727 N. First Street
Suite 400
St. Louis, MO 63102

Attn: David Garrett

Date: March 29, 2002

Re: Modine Manufacturing Company

We Are Sending You:

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Shop Drawings	Documents	Tracings
Prints	Specifications	Catalogs
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Quantity	Description
1	<i>Final Work Plan Addendum</i> Corrective Action Submitted to Modine Manufacturing Company March 2002

If material received is not as listed, please notify us at once

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